

# **Appendix V**

## **Mitigation Measures and Conservation Actions For Greater Sage-Grouse Habitat**

### **Introduction**

These Mitigation Measures, and Conservation Actions for Greater Sage-Grouse Habitat are a compilation of management strategies and project design features employed by the Bureau of Land Management (BLM) to mitigate impacts from surface disturbance and disruptive activities in priority and general sage-grouse habitat in order to meet the goals and objectives set forth in the BLM National Sage-grouse Conservation Strategy and in individual land use plans. They apply to activities such as road or pipeline construction, range improvements, and permitted land uses or recreation activities. These guidelines are presented as an appendix for easy reference as they apply to many resources and were derived from many laws and other guidelines such as the Management Plan and Conservation Strategies for Sage-grouse in Montana, the BLM National Technical Team Report (WO IM No. 2012-044, BLM National Greater Sage-Grouse Land Use Planning Strategy), Western Association of Fish and Wildlife Agencies (WAFWA), Conservation Strategy for Greater Sage-grouse, and others.

The guidelines are primarily included to provide consistency within the Montana/Dakotas BLM in how management practices and requirements are identified and applied to avoid and mitigate environmental impacts and resource and land use conflicts in greater sage-grouse (*Centrocercus urophasianus*; hereafter, 'sage-grouse') habitat. Consistency in this sense does not mean that identical requirements would be applied for all similar types of land use activities, nor does it mean that the requirements or guidelines for a single land use activity would be identical in all areas.

There are two ways the mitigation guidelines are used in the RMP and EIS process: (1) as part of the planning criteria in developing the RMP alternatives; and (2) in the analytical processes of both developing the alternatives and analyzing the impacts of the alternatives. In the first case, an assumption is made that any one or more of the mitigation measures or conservation actions will be appropriately included as conditions of relevant actions being proposed or considered in each alternative. In the second case, the mitigations are used (1) to develop a baseline for measuring and comparing impacts among the alternatives; (2) to identify other actions and alternatives that should be considered; and (3) to help determine whether more stringent or less stringent mitigations should be considered.

The EIS for the RMP does not decide or dictate the exact wording or inclusion of these guidelines. Rather, the guidelines are used in the RMP and EIS process as a tool to help develop the RMP alternatives and to provide a baseline for comparative impact analysis in arriving at RMP decisions. These guidelines will be used in the same manner in analyzing activity plans and other site-specific proposals. These guidelines and their wording are matters of policy. As such, specific wording is subject to change primarily through administrative review, not through the RMP and EIS process. Any further changes that may be made in the continuing refinement of these guidelines and any development of program-specific standard stipulations will be handled in another forum, including appropriate public involvement and input.

### **Purpose**

The purpose of these mitigation measures and conservation actions is to mitigate impacts from surface disturbance in priority and general sage-grouse habitat in order to meet the goals and objectives set forward in the BLM National Sage-grouse Conservation Strategy and in individual land use plans. Application of mitigation measures and conservation actions will reserve for the BLM the right to modify the operations of surface-disturbing and/or disruptive activities as part of the statutory requirements for environmental protection. Those measures selected for implementation will be

identified in the Record of Decision (ROD) or Decision Record (DR) for those activities and will inform a potential lessee, permittee, or operator of the requirements that must be met when using BLM lands and minerals. These measures have been written in a format that will allow for either their direct use as stipulations or operating standards and/or in addition to specific or specialized mitigation following the submission of a detailed development plan or other project proposal and an environmental analysis. These operating standards are given as acceptable methods for mitigating anticipated effects and achieving the desired plan outcomes but are not prescribed as the only method for achieving the outcomes.

Those resource activities or programs currently without a standardized set of permit or operation stipulations can use the mitigation measures and conservation actions for greater sage-grouse as stipulations or as conditions of approval, or as a baseline for developing specific stipulations for a given activity or program.

These mitigation measures and conservation actions are primarily written for priority sage-grouse habitats. Within general habitat the mitigation measures and conservation actions applied are determined at a project-by-project level and may be similar in many cases to the priority habitat measures. A selection of mitigation measures and conservation actions for general habitat is also included for some programs. At the project level, in order to prioritize certain general habitat areas over marginal or substandard sage-grouse habitat areas, consideration should be given to:

- The capability of the habitat to provide connectivity among priority areas.
- Habitats occupied by sage-grouse where enhancing general sage-grouse habitat can offset losses to habitat and/or populations elsewhere within the habitat.
- The potential to replace lost priority habitat or needed changes in total priority habitat due to perturbations and/or disturbances, providing connectivity between priority areas, and restoring historical habitat functionality to support meeting objectives to maintain or enhance connectivity.

## Threats to Greater Sage-Grouse and Their Habitat

A number of threats and risks to sage-grouse and their habitat have been identified during conservation planning efforts and assessments. Range wide issues were covered in listing decisions made by the U.S. Fish and Wildlife Service in 2007 and 2010. In addition, the BLM National Technical Team Report (WO IM No. 2012-044) covered BLM program areas with the potential to impact sage-grouse populations. The 2005 Management Plan and Conservation Strategies for Sage-Grouse in Montana - Final identified twelve major issues:

- *Fire Management*
- *Grazing Management*
- *Harvest Management*
- *Noxious Weed Management*
- *Mining and Energy Development*
- *Outreach and Education*
- *Power Lines and Generation Facilities*
- *Predation*
- *Recreational Disturbance*
- *Roads and Motorized Vehicles*
- *Vegetation*
- *Managing Other Wildlife in Sage-Grouse Habitats*

## Conservation Actions

These mitigation measures and conservation actions for sage-grouse would be implemented on a project-specific basis in sage-grouse priority habitat, depending on the specific characteristics of the project area and the types of disturbance being proposed. They may not be appropriate to implement in all cases. The mitigation would be requirements, procedures, management practices, or design features that the BLM, through issuance of the Record of Decision (ROD),

would adopt as operational requirements. The BLM may add additional site-specific restrictions as deemed necessary by further environmental analysis and as developed through coordination with other federal, state, and local regulatory and resource agencies. Because mitigation measures change or are modified based on new information, the guidelines will be updated periodically.

In the very early stages of the development of siting and design plans, project developers shall coordinate with appropriate federal, state, and local agencies that regulate activities that affect sage-grouse and their habitats to determine what expected level of mitigation will be needed to ensure the RMP goals and objectives can be met within the proposed action. An environmental review shall demonstrate how the mitigation measures and conservation actions being applied to the project avoid impacts (direct, indirect, and cumulative) that may result in BLM authorizing actions which would exceed habitat level thresholds and prevent achievement of goals and objectives in the priority area. This will analyze at the project level at least two considerations to examine functionality of sage-steppe systems and thresholds where populations are known to be impacted:

- At the landscape scale, priority areas should be maintained with enough land cover composed of adequate sagebrush habitat to provide habitat for sage-grouse and to meet priority habitat objectives. This is measured using broad-scale habitat classification to determine the amount of potential habitat based on ecological sites and is compared against permanent habitat loss and/or short-term habitat loss from disturbances such as agricultural tillage, fire, etc.
- At the local population scale discrete anthropogenic disturbances should be avoided, minimized, or mitigated to maintain the highest quality habitat. Two thresholds have been proposed to maintain populations within priority areas. The National Technical Team proposed a 3% surface disturbance cap for priority sage-grouse habitat while Wyoming issued an Executive Order utilizing a 5% cap. The actual impact to sage-grouse will depend on the amount of direct disturbance, the level of activity associated with the direct disturbance that leads to indirect disturbance, and the cumulative effects of the disturbance level, which result in habitat loss and habitat degradation.

In analyzing the impact from a project, consideration should be given to the type of activity, the amount of anthropogenic disturbance to seasonal sage-grouse habitat utilized by the local population, and the landscape context. As an area moves from direct disturbance exceeding 3% and then 5%, put in context of the condition of the larger landscape, increased mitigation, habitat enhancement, and off-site considerations will be important to maintaining goals and objectives for sage-grouse and priority habitats. Specifically, at the site level the BLM will analyze and disclose how permitted actions, including mitigation measures and conservation actions already in place, affect the ability of priority area goals and objectives to be met and ensure permitted activities are in conformance with the RMP.

## **Priority Habitat**

### **Travel Management**

Travel management should evaluate, during site-specific travel planning, the need for permanent or seasonal road or area closures to protect sage-grouse priority habitat areas.

Use existing roads or realignments to access valid existing rights that are not yet developed. If valid existing rights cannot be accessed via existing roads, then any new roads would be constructed to the absolute minimum standard necessary.

Allow no upgrading of existing routes that would change route category (road, primitive road, or trail) or capacity unless the upgrading would have minimal or beneficial impacts on sage-grouse habitat, is necessary for motorist safety, or eliminates the need to construct a new road.

Reclaim roads, primitive roads and trails not designated in travel management plans. This also includes primitive route/roads that were not designated in Wilderness Study Areas and within lands with wilderness characteristics that have been selected for protection.

When reclaiming roads, primitive roads, and trails, use appropriate seed mixes and consider transplanting sagebrush.

Evaluate impacts of existing roads, including two-tracks, in relation to known lek locations and greater sage-grouse winter ranges.

Consider the use of speed bumps where appropriate to reduce vehicle speeds near leks, such as during oil and gas development.

Manage on-road travel and OHV use in sage-grouse habitat to avoid disturbance during critical times such as winter, breeding, and nesting periods.

Plan or permit organized events to avoid impacts to sage-grouse.

Manage motorized and mechanized travel to minimize impacts to sage-grouse and their habitat by developing standards for future roads to give to BLM, FS, BIA, state, county, and private parties.

Manage motorized and mechanized travel to minimize impacts to sage-grouse by enforcing existing OHV and travel management plans.

Provide educational opportunities for users of OHVs dealing with the possible effects they may have on sage-grouse.

Develop a transportation management plan across ownership boundaries in sage-grouse habitats.

Participate in travel planning efforts and educate the general public about the impacts of roads on sage-grouse and their habitat.

Consider buffers, removal, realignment, or seasonal closures of roads where appropriate to avoid degradation of habitat.

Reclaim closed roads with locally adapted native plant species beneficial to sage-grouse.

Close and reclaim travel ways in sage-grouse habitat where appropriate.

## **Recreation**

Document leks where recreational viewing occurs.

Provide educational materials to the public describing effects of concentrated recreational activities and the importance of seasonal ranges to sage-grouse.

Issue special use permits for certain activities with distance and timing restrictions to maintain the integrity of breeding, nesting, and winter habitat.

## **Lands and Realty**

Where designated ROW corridors are encumbered by existing ROW authorizations, new ROWs should be co-located to the extent practical and feasible so that the entire footprint of the proposed project is contained within the existing disturbance associated with the authorized ROWs.

Subject to valid, existing rights, where new ROWs associated with valid existing rights are required, co-locate new ROWs within existing ROWs or where it best minimizes impacts to sage-grouse. Use existing roads, or realignments as described above, to access valid existing rights that are not yet developed. If valid existing rights cannot be accessed via existing roads, then build any new road constructed to the absolute minimum standard necessary.

Upon project completion, roads used for commercial access on public lands would be reclaimed unless, based on site-specific analysis, the route provides specific benefits for public access and does not contribute to resource conflicts.

For powerlines:

- Document the segment(s) of line detrimental to sage-grouse.
- Determine by cooperative action – agencies, utilities, and landowners – whether or not modification of poles to limit perching will prevent electrocution of raptors and decrease predation on sage-grouse.
- Emphasize the following if perch prevention modifications do not work to protect sage-grouse and sagebrush habitat:
  - reroute the line using distance, topography, or vegetative cover; or
  - bury the line.
- Explore opportunities for technical assistance and funding.
- Remove power line when use is completed.
- Encourage the use of off-grid systems such as solar, natural gas micro-turbines, and wind power where feasible in sage-grouse habitats.
- Use the best available information for siting power lines on important breeding, brood-rearing, and winter habitat in an appropriate vicinity of the proposed line.
- Initiate collision prevention measures using guidelines (Avian Power Line Action Committee 1994) on identified segments. Measures are subject to restriction or modification for wind and ice loading or other engineering concerns, or updated collision prevention information.
- Remove power lines that traverse sage-grouse habitats when facilities being serviced are no longer in use or when projects are completed.

## **Livestock Grazing**

### **Conducting Land Health Assessments and Permit Renewals in Priority Greater Sage-Grouse Habitat**

#### **Land Health Assessments**

When conducting land health assessments:

- Prioritize allotments that have the best opportunities for conserving, enhancing or restoring habitat for sage-grouse.
- Include (at a minimum) indicators and measurements of structure/condition/composition of vegetation specific to achieving sage-grouse habitat objectives (Doherty, et al. 2011). If local/state seasonal habitat objectives are not available, use sage-grouse habitat recommendations from Connelly, et al. (2000b) and Hagen, et al. 2007.

#### **Permit Renewals**

When conducting permit renewals:

- If an effective grazing system that meets sage-grouse habitat requirements is not already in place, analyze at least one alternative that conserves, restores or enhances sage-grouse habitat in the NEPA document prepared for the permit renewal if the size of the allotment and/or cooperative opportunities warrant it.
- Work cooperatively on integrated ranch planning within sage-grouse habitat so ranch operations with deeded BLM allotments can be planned as single units.
- Analyze springs, seeps and associated pipelines to determine if modifications are necessary to maintain the continuity of the predevelopment riparian area within priority sage-grouse habitats. Make modifications where necessary, considering impacts to other water uses when such considerations are neutral or beneficial to sage-grouse. Only authorize new spring or seep developments where the impacts to sage-grouse would be beneficial.
- Evaluate the role of existing seedings that are currently composed of primarily introduced perennial grasses in and adjacent to priority sage-grouse habitats to determine if they should be restored to sagebrush steppe for sage-grouse. If these seedings are part of an AMP/Conservation Plan or if they provide value in conserving or enhancing the rest of the priority habitats, then no restoration would be necessary. Assess the compatibility of these seedings for sage-grouse habitat or as a component of a grazing system during the land health assessments (Davies, et al. 2011).

- Evaluate existing structural range improvements and location of supplements (salt or protein blocks) to make sure they conserve, enhance or restore sage-grouse habitat.
  - This includes evaluating methods to reduce outright sage-grouse strikes and mortality, through removing, modifying, or marking fences in high risk areas within priority sage-grouse habitat based on proximity to lek, lek size, and topography (Christiansen 2009, Stevens 2011, Stevens, et al. 2012).
- Monitor for, and treat invasive species associated with existing range improvements (Gelbard and Belnap 2003 and Bergquist, et al. 2007).

Include terms and conditions on grazing permits and leases that assure plant growth requirements are met, and residual forage remains available for greater sage-grouse hiding cover. Utilize techniques appropriate for uplands vs. riparian/meadow areas and enhancement vs. reclamation/restoration. Across all these types of projects consider singly, or in combination, changes as necessary:

- Season or timing of use;
- Numbers of livestock (includes temporary non-use or livestock removal);
- Distribution of livestock use;
- Intensity of use (utilization or stubble height objectives)
- Kind of livestock (e.g., cattle, sheep, horses, llamas, alpacas and goats)
- Class of livestock (e.g., yearlings versus cow-calf pairs)

Within riparian areas specifically, consider practices such as:

- Within priority sage-grouse habitat, reduce hot season grazing on riparian and meadow complexes to promote recovery or maintenance of appropriate vegetation and water quality. Utilize fencing/herding techniques or seasonal use or livestock distribution changes to reduce pressure on riparian or wet meadow vegetation used by sage-grouse in the hot season (summer).
- Ensure the sustainability of desired soil conditions and ecological processes within upland plant communities following implementation of strategies to protect riparian areas. This can be achieved by:
  - protecting natural wet meadows and springs from over-use while developing water for livestock, and
  - planning the location, design, and construction of new fences to minimize impacts on sage-grouse.

### **Range Management Mitigation Measures and Conservation Actions**

Design any new structural range improvement and location of supplements (salt or protein blocks) to conserve or enhance sage-grouse habitat through an improved grazing management system relative to sage-grouse management objectives. Structural range improvements in this context include, but are not limited to: cattleguards, fences, exclosures, corrals, or other livestock handling structures; pipelines, troughs, storage tanks (including moveable tanks used in livestock water hauling), windmills, ponds/reservoirs, solar panels, and spring developments.

Discourage concentration of livestock on sage-grouse leks and winter habitat.

If portions of existing fences are found to pose a threat to sage-grouse, mitigate through moving or modifying posts, increasing the visibility of the fences by flagging, or by designing “take-down” fences.

### **Pesticides and Herbicides Use**

- Evaluate ecological consequences of using pesticides to control grasshoppers or other insects.
- Evaluate ecological consequences of broadcast herbicide use on forbs and other important sage-grouse foods.
- Minimize use of pesticides and herbicides in sage-grouse nesting, breeding and brood-rearing habitat.

### **Noxious Weed Management**

- Promote measures that prevent the introduction and spread of weed seeds and other reproducing plant parts.
- Develop and implement management techniques that minimize the risk of infestation.
- Where feasible, isolate livestock from known infestations and avoid vehicle movement through infested areas.
- Use weed-free seed for reestablishment of vegetation.

- Eliminate unnecessary soil disturbance and vehicle access/movement into occupied sage-grouse habitat.
- Limit vehicle use to established roads only.
- Regularly monitor access points and roads for weed establishment.
- Develop partnerships with regional public and private land management units.
- Establish goals and set priorities that encompass the needs of both livestock and wildlife managers so all parties are working under a similar plan.
- Conduct monitoring and develop follow-up procedures for treated areas.
- Educate all field personnel on weed identification, the manner in which weeds spread, and methods of treating weed infestations.
- Employ integrated weed management treatment methods such as a combination of biological and cultural, like grazing, mowing, or seeding treatments in conjunction with herbicides to manage weeds in greater sage-grouse habitat.
- Use the most selective herbicides where chemical treatment is appropriate, to minimize loss of non-target plant species.
- Restore plant communities with desired species adapted to the site, using proven management techniques where biologically feasible. A restoration program may be necessary if conditions prevent natural re-establishment of native plant species.

## Fluid Minerals

Other protective measures will be necessary in cases where federal oil and gas leases have been issued without adequate stipulations for the protection of sage-grouse or their habitats being provided in the applicable RMP decision, as revised or amended. In these cases, mitigation measures and conservation actions will be applied as permit conditions of approval (COAs) when approving exploration and development activities through completion of the environmental record of review or an environmental assessment, as appropriate (43 CFR 3162.5).

General or typical COAs are mitigation measures that may be required when processing Applications for Permits to Drill (APDs), Sundry Notice Drilling Plans, and Surface Use Plans when they are: 1) not specifically addressed in those plans or existing lease stipulations; and 2) needed to mitigate impacts to resource values identified at the onsite inspection or during review of the plans. The use of COAs is intended to reduce, mitigate, or minimize impacts from development but they do not necessarily avoid or preclude resulting significant impacts from the project.

The COAs also allow the BLM to prescribe resource protection measures for lands that were previously leased with varying sets of lease stipulations. However, for lands that are already leased, BLM restrictions on development must be reasonable and consistent with existing lease rights. The COAs must not constrain or restrict development beyond the measures anticipated or authorized by the lease terms or regulations and/or interfere with the lessee's opportunity to economically recover the oil and gas resources, considering the lease as a whole.

Evaluation of these COAs will consider during the NEPA process:

- Whether the conservation measure is "reasonable" (43 CFR 3101.1-2) and consistent with valid existing rights;
- Whether the action is in conformance with the approved RMP; and
- The effectiveness of the mitigation measures proposed.

When incorporated into BLM's program in the Record of Decision (ROD), mitigation approaches and conservation practices detailed in the Surface Use Plan of Operations (see 43CFR 3162-1(f)) shall address, at a minimum, the proposed project's anticipated noise, density and amount of disturbance, mechanical movement (e.g., pumpjacks), permanent and temporary facilities, traffic, phases of development over time, offsite mitigation, and expected periods of use. Following larger-scale considerations for minimizing impacts to sage-grouse this section contains BMPs that will be included, as applicable, as COAs to address to categories of concern. Due to site-specific circumstances, some categories may not apply to some projects and/or may require slight variations from the approach described. It is anticipated the applicability and/or variation in approach will be limited to project siting and configuration. Additional mitigation measures may be identified and required during individual planning. Applicants will be required to discuss any proposed variations with BLM staff. All variations will require appropriate analysis and disclosure as part of future

project authorizations. Those design features that do not apply to a given project will need to be described as part of the project file along with an appropriate rationale.

The following hierarchical approach and guidelines should be followed during project development to address these and other areas of concern for sage-grouse:

#### Density and Amount of Disturbance

Do not allow new surface occupancy on Federal leases within priority habitat areas, including winter concentration areas during any time of the year (Doherty, et al. 2008, Carpenter, et al. 2010). Where this is not possible due to valid existing rights and development requirements for the specific geologic and fluid mineral resources, consider the following disturbance and surface occupancy limits to the extent practicable:

If the lease is partially or entirely within priority habitat areas:

- Subject to topographic and other environmental constraints, require any development within priority habitat to be placed in the area least harmful to sage-grouse based on vegetation, topography, or other habitat features.
- To the extent possible and consistent with valid existing rights, limit disturbances to an average of one site per 640 acres on average, with no more than 3% direct surface disturbance in the analysis area.
- When additional mitigation is necessary, conduct it in the impacted priority sage-grouse habitat areas when possible or, if that is not possible, in general sage-grouse habitat with the ability to increase sage-grouse populations tied to the impacted priority area(s).

#### Breeding and Nesting Habitat

To limit impacts to breeding and nesting habitat, surface-disturbing and disruptive activities shall be prohibited or restricted within 4 miles of a lek to the extent possible and consistent with valid existing rights. If the entire lease is completely within the 4-mile perimeter of a lek, require any development to be placed at the part of the lease farthest from the lek or, based depending on topography and other habitat features, in an area demonstrably the least harmful to sage-grouse.

To ensure comprehensive planning relative to sage-grouse conflicts, complete Master Development Plans or PODS during planning and review of projects involving multiple proposed disturbances within a logical geographic area, with an exception for individual wildcat (exploratory) wells.

Encourage unitization when deemed necessary for proper development and operation of an area or to facilitate more orderly (e.g., phased and/or clustered) development as a means of minimizing adverse impacts to sage-grouse (see Federal Lease Form, 3100-11, Sections 4 and 6).

#### Brood-Rearing Habitat

Apply a seasonal timing restriction on exploratory drilling that avoids construction, drilling, completion, and reclamation surface-disturbing activities during the nesting and early brood-rearing seasons in all priority sage-grouse habitats for this period.

### **Best Management Practices for Fluid Mineral Development**

Prioritize pad development based on suitability of habitat; construct pads that are in less suitable habitat (i.e., along existing roadways or within degraded habitats) during the breeding season, and construct pads located in more suitable habitat prior to or after the critical breeding, nesting, and brood rearing periods.

Avoid sagebrush, but if disturbance is necessary, interim reclamation should include sage plantings/seedings and/or the use of minimum disturbance practices to protect sage on well pads and pipelines.



## Roads

- Design roads to an appropriate standard no higher than necessary to accommodate their intended purpose.
- Locate roads to avoid important areas and habitats.
- Coordinate road construction and use among ROW holders.
- Construct road crossing at right angles to ephemeral drainages and stream crossings.
- Establish speed limits on BLM system roads to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.
- Establish trip restrictions or minimization through use of telemetry and remote well control (e.g., Supervisory Control and Data Acquisition).
- Do not issue ROWs to counties on newly constructed energy development roads, unless for a temporary use consistent with all other terms and conditions included in this document.
- Restrict vehicle traffic to only authorized users on newly constructed routes (use signing, gates, etc.)
- Use dust abatement practices on roads and pads.
- Close and reclaim duplicate roads.

## Operations

- Cluster disturbances, operations (fracture stimulation, liquids gathering, etc.), and facilities.
- Use directional and horizontal drilling to reduce surface disturbance.
- Place infrastructure in already disturbed locations where the habitat has not been restored.
- Consider using oak (or other material) mats for drilling activities to reduce vegetation disturbance and for roads between closely spaced wells to reduce soil compaction and maintain soil structure to increase likelihood of vegetation reestablishment following drilling.
- Apply a phased development approach with concurrent reclamation.
- Place liquid gathering facilities outside of priority areas. Have no tanks at well locations within priority areas (minimizes perching and nesting opportunities for ravens and raptors and truck traffic). Pipelines must be under or immediately adjacent to the road (Bui et al. 2010).
- Restrict the construction of tall facilities and fences to the minimum number and amount needed.
- Site and/or minimize linear ROWs to reduce disturbance to sagebrush habitats.
- Place new utility developments (power lines, pipelines, etc.) and transportation routes in existing utility or transportation corridors.
- Bury distribution power lines.
- Corridor power, flow, and small pipelines under or immediately adjacent to roads.
- Design or site permanent structures which create movement (e.g., a pumpjack) to minimize impacts to sage-grouse.
- Cover (e.g., fine mesh netting or use other effective techniques) all drilling and production pits and tanks regardless of size to reduce sage-grouse mortality.
- Equip tanks and other above-ground facilities with structures or devices that discourage nesting of raptors and corvids.
- Control the spread and effects of non-native plant species (e.g., by washing vehicles and equipment)
- Mitigate pit and impoundment construction to reduce or eliminate threats from West Nile virus.
- Limit noise to less than 10 decibels above ambient measures (20-24 dBA) at sunrise at the perimeter of a lek during active lek season (Patricelli, et al. 2010; Blickley, et al. *In preparation*).
- Require noise shields when drilling during the lek, nesting, brood-rearing, or wintering season.
- Fit transmission towers with anti-perch devices (Lammers and Collopy 2007).
- Locate new compressor stations outside priority habitats and design them to reduce noise that may be directed towards priority habitat.
- Clean up refuse.

## Reclamation

- Include objectives for ensuring habitat restoration to meet sage-grouse habitat needs in reclamation practices/sites. Address post-reclamation management in reclamation plan such that goals and objectives are to protect and improve sage-grouse habitat.

- Maximize the area of interim reclamation on long-term access roads and well pads including reshaping, topsoiling and revegetating cut and fill slopes.
- Restore disturbed areas at final reclamation to the pre-disturbance landforms and desired plant community.
- Irrigate interim reclamation if necessary for establishing seedlings more quickly.
- Utilize mulching techniques to expedite reclamation and to protect soils.

BLM would utilize Oil and Gas BMPs for Wildlife (2012) to reduce impacts to sage-grouse and other wildlife. These BMPs address: In 2012, BLM developed BMPs for wildlife protection. Best practices established in the policy focus on the following five industry situations:

1. Open pits and tanks containing freestanding liquid;
2. Chemical tank secondary containment;
3. Pit, tank, and trench entrapment hazards;
4. Open exhaust stacks; and
5. Wire enclosure fencing.

These BMPs are summarized in Appendix B and can also be found at [http://www.blm.gov/wo/st/en/info/regulations/Instruction\\_Memos\\_and\\_Bulletins/national\\_instruction/2013/IM\\_2013-033.html](http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2013/IM_2013-033.html).

## **Solid Minerals**

Recommend minimization of surface-disturbing or disrupting activities (including operations and maintenance) where needed to reduce the impacts of human activities on sage-grouse habitats. Apply these measures during activity level planning.

Encourage development in incremental stages to stagger disturbance; design schedules that include long-term strategies to localize disturbance and recovery within established zones over a staggered timeframe.

Use off-site mitigation or purchase conservation easements with industry dollars to offset habitat losses.

Remove facilities and infrastructure when use is completed.

Allow no surface use in nesting habitat from March 1 through June 15.

Restrict maintenance and related activities in sage-grouse breeding/nesting complexes – March 1 through June 15 – between the hours of 4:00 – 8:00 a.m. and 7:00 – 10:00 p.m.

Allow no surface use activities within sage-grouse wintering areas from December 1 through March 31.

Use minimal surface disturbance to install roads and pipelines and reclaim site of abandoned wells to natural communities.

Locate storage facilities, generators, and holding tanks outside the line of sight and sound of breeding habitat.

See conservation actions related to preventing the spread of weeds and controlling infestations of noxious weeds.

Develop and establish new sources of seed of native plant species for restoration of sites disturbed by development actions.

Design impoundments and manage discharge so as not to degrade or inundate leks, nesting sites, and wintering sites.

Protect natural springs from any source of disturbance or degradation from energy-related activities.

Provide for long-term monitoring of siting requirements to examine effects of current and future development on sage-grouse.

Set up a schedule for reviewing and revising siting and use criteria with industry.

### **Roads**

- Design roads to an appropriate standard no higher than necessary to accommodate their intended purpose.
- Locate roads to avoid important areas and habitats.
- Coordinate road construction and use among ROW holders.
- Construct road crossings at right angles to ephemeral drainages and streams.
- Establish speed limits on BLM system roads to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.
- Do not issue ROWs to counties on mining development roads, unless for a temporary use consistent with all other terms and conditions included in this document.
- Restrict vehicle traffic to only authorized users on newly constructed routes (e. g., use signing, gates, etc.)
- Use dust abatement practices on roads and pads.
- Close and reclaim duplicate roads by restoring original landform and establishing desired vegetation.

### **Operations**

- Cluster disturbances associated with operations and facilities as close as possible.
- Place infrastructure in already disturbed locations where the habitat has not been restored.
- Restrict the construction of tall facilities and fences to the minimum number and amount needed.
- Site and/or minimize linear ROWs to reduce disturbance to sagebrush habitats.
- Place new utility developments (power lines, pipelines, etc.) and transportation routes in existing utility or transportation corridors.
- Bury power lines.
- Cover (e.g., fine mesh netting or use other effective techniques) all pits and tanks regardless of size to reduce sage-grouse mortality.
- Equip tanks and other above-ground facilities with structures or devices that discourage nesting of raptors and corvids.
- Control the spread and effects of non-native plant species (Gelbard and Belnap 2003; Bergquist, et al. 2007).
- Mitigate pit and impoundment construction to reduce or eliminate threats from West Nile virus
- Remove or re-inject produced water to reduce habitat for mosquitoes that vector West Nile virus. If surface disposal of produced water continues, limit favorable mosquito habitat through reservoir design.
- Require sage-grouse-safe fences around sumps.
- Clean up refuse.

### **Reclamation**

- Include restoration objectives to meet sage-grouse habitat needs in reclamation practices/sites. Address post-reclamation management in reclamation plan such that goals and objectives are to protect and improve sage-grouse habitats.
- Maximize the area of interim reclamation on long-term access roads and well pads including reshaping, topsoiling and revegetating cut and fill slopes.
- Restore disturbed areas at final reclamation to pre-disturbance landform and desired plant community.
- Irrigate interim reclamation as necessary during dry periods.
- Utilize mulching techniques to expedite reclamation.

## **Wildfire Suppression, Fuels Management and Fire Rehabilitation**

### **Fuels Management**

Design and implement fuels treatments with an emphasis on protecting existing sagebrush ecosystems.

- Do not reduce the existing sagebrush canopy cover unless a fuels management objective requires additional reduction in sagebrush cover to meet strategic protection of priority sage-grouse habitat and conserve habitat quality for the species. Closely evaluate the benefits of the fuel break against the additional loss of sagebrush cover in an environmental analysis.
- Apply appropriate seasonal restrictions for implementing fuels management treatments according to the type of seasonal habitats present in a priority area.
- Allow no treatments in known winter range unless the treatments are designed to strategically reduce wildfire risk or enhance habitat around or in the winter range and will maintain habitat quality.
- Do not use fire to treat sagebrush in less than 12-inch precipitation zones (e.g., Wyoming big sagebrush or other xeric sagebrush species). However, if as a last resort and after all other treatment opportunities have been explored and site-specific variables allow, the use of prescribed fire for fuel breaks that would disrupt the fuel continuity across the landscape could be considered in stands where cheatgrass is a very minor component in the understory.
- Monitor and control invasive vegetation post-treatment.
- Require use of native seeds for fuels management treatment based on availability, adaptation (site potential), and probability of success. Where probability of success or native seed availability is low, non-native seeds may be used as long as they meet sage-grouse habitat objectives.
- Design post-fuels management projects to ensure long-term persistence of seeded or pre-treatment native plants. This may require temporary or long-term changes in livestock grazing management, wild horse and burro management, travel management, or other activities to achieve and maintain the desired condition of the fuels management project.
- Design fuels management projects in priority greater sage-grouse habitat to strategically and effectively reduce wildfire threats in the greatest area. This may require fuels treatments implemented in a more linear versus block design.
- For the project to be approved the authorizing official should consider:
  - biological and physical limitations of the site and the impact on sage-grouse;
  - management objectives for the site, including those for wildlife, are clearly defined;
  - potential for weed invasion and successional trends are well understood;
  - capability exists to manage the post-burn site properly, including a funded monitoring schedule, to achieve a healthy sagebrush community.

Develop local or regional guidelines or consider the following guidelines if fire is used as a tool:

- Analyze cumulative effects of sagebrush treatment by considering ecological units, evaluate the degree of fragmentation, and maintain a good representation of mature sagebrush.
- Predict effects for the length of time necessary for sagebrush to return to desired condition for determined treatment types and intervals.
- Identify suitable patch size based on site-specific characteristics of the natural community and treat patches in a mosaic pattern that provides sagebrush cover for snow capture, hiding cover, and a seed source.
- Use available literature to research the effects of fire on sagebrush communities.
- Use caution in reducing sagebrush cover in and following drought periods.

During fuels management project design, consider the utility of using livestock to strategically reduce fine fuels, and implement grazing management that will accomplish this objective.

Consult with ecologists to minimize impacts to native perennial grasses.

Develop criteria for managing fuels and other risks to sage-grouse habitat.

Identify all sage-grouse habitats and prioritize on the basis of risk of loss to wildfire.

Develop appropriate actions on a site by site basis, such as using existing roads as fire breaks.

Develop treatments to improve habitats over the long term if sagebrush stands do not meet objectives for sage-grouse, such as confining treatments to small patches.

Consider mechanical treatment as the primary method and prescribed fire as a secondary method to remove conifers that encroach on greater sage-grouse habitat, except where forested habitat is limited.

Avoid treatments to sage-grouse habitat in areas that are susceptible to invasion by cheatgrass or other invasive plant species. Treatment will be accompanied by restoration, and reseeded if necessary, to re-establish native vegetation.

Protect sagebrush along riparian zones, meadows, lakebeds, and farmlands that are adjacent to intact/known/PPH sage-grouse habitat.

Wash vehicles and heavy equipment for fires prior to arrival at a new location to avoid introduction of noxious weeds.

Apply Fuels Management and Fire Operations BMPs (see WO IM 2011-138) as appropriate.

### **Emergency Stabilization and Rehabilitation (ES&R)**

Prioritize native seed allocation for use in sage-grouse habitat in years when preferred native seed is in short supply. This may require reallocation of native seed from ES&R projects outside of priority sage-grouse habitat to those inside it. Use of native plant seeds for ES&R seedings is required based on availability, adaptation (site potential), and probability of success (Richards, et al. 1998). Where probability of success or native seed availability is low, non-native seeds may be used as long as they meet sage-grouse habitat conservation objectives (Pyke 2011). Re-establishment of appropriate sagebrush species/subspecies and important understory plants, relative to site potential, shall be the highest priority for rehabilitation efforts.

Design post-ES&R management to ensure long term persistence of seeded or pre-burn native plants. This may require temporary or long-term changes in livestock grazing, wild horse and burro, and travel management, etc. to achieve and maintain the desired condition of ES&R projects to benefit sage-grouse.

Consider potential changes in climate when proposing post-fire seedings using native plants. Consider seed collections from the warmer component within a species' current range for selection of native seed.

Assure that long-term wildfire rehabilitation objectives are consistent with the desired natural plant community.

Revegetate burned sites in greater sage-grouse habitat within one year unless natural recovery of the native plant community is expected. Areas disturbed by heavy equipment will be given priority consideration.

Emphasize native plant species adapted to the site that are readily available and economically and biologically feasible.

Monitor the site and treat for noxious weeds.

### **Restoration**

Prioritize implementation of restoration projects based on environmental variables that improve chances for project success in areas most likely to benefit sage-grouse.

Prioritize restoration in seasonal habitats that are thought to be limiting sage-grouse distribution and/or abundance.

Include sage-grouse habitat parameters as defined by Connelly, et al. (2000); Hagen, et al. (2007) or, if available, state sage-grouse conservation plans and appropriate local information in habitat restoration objectives.

Require use of native seeds for restoration based on availability, adaptation (ecological site potential), and probability of success. Where probability of success or adapted seed availability is low, non-native seeds may be used as long as they support sage-grouse habitat objectives.

Design post-restoration management to ensure long term persistence. This could include changes in livestock grazing management, wild horse and burro management and travel management, etc. to achieve and maintain the desired condition of the restoration effort that benefits sage-grouse.

Consider potential changes in climate when proposing restoration seedings when using native plants. Consider collection from the warmer component of the species current range when selecting native species.

Restore native plants and create landscape patterns which most benefit greater sage-grouse.

Make re-establishment of sagebrush cover and desirable understory plants (relative to ecological site potential) the highest priority for restoration efforts.

In fire prone areas where sagebrush seed is required for sage-grouse habitat restoration, consider establishing seed harvest areas that are managed for seed production and are a priority for protection from outside disturbances.

Map and inventory areas believed to be impacted by conifer expansion. If conifer encroachment is a concern, options for treatment include:

- Prescribed fires when and where feasible,
- Remove trees mechanically when feasible, and
- Apply herbicides when and where feasible.

Evaluate the site potential and desired condition, and develop specific objectives accordingly within specific landscapes.

If sagebrush is lacking:

- Develop and implement grazing practices that influence sagebrush growth,
- Inter-seed historical breeding and winter habitats with the appropriate sagebrush species,
- Identify and promote seed sources for habitat restoration efforts,
- Reclaim and/or re-seed areas disturbed by treatments when necessary, and
- Promote sage plantings, where appropriate, on project areas occurring within sage-grouse habitats.

If mature sagebrush dominates with suppressed herbaceous understory:

- Identify areas of dense mature cover that do not appear to be serving as quality habitat and analyze these areas within the context of a larger landscape,
- Design sagebrush treatments to be compatible with sage-grouse needs,
- Develop specific objectives for greater sage-grouse in breeding or winter habitats, and
- If treatment is deemed appropriated, interrupt seral stages within the appropriate patch size using the appropriate method, such as brush beating, chaining, chemical means, prescribed fire, etc. that is compatible with local conditions.

If residual understory is lacking in sagebrush stands:

- Manage grazing by domestic livestock and wild herbivores to retain and promote adequate residual cover in all breeding habitats with an emphasis on nesting areas.
- Ensure that grazing allotment plans include objectives for greater sage-grouse in sage-grouse habitats.
- Monitor allotment plans and regulations, and make changes where necessary.
- Include native grasses in all reclamation and restoration activities.

## Other Wildlife

Initiate studies to better understand sage-grouse mortality rates, the factors that influence these rates and the effectiveness of management actions to change them. These studies should determine the relationships between predation, habitat fragmentation, and habitat condition.

Implement actions to improve the structure and composition of sagebrush communities to meet desired conditions for sage-grouse seasonal habitats.

Maintain and restore sagebrush communities where appropriate for sage-grouse populations.

Reduce man-made issues and conifer encroachment in sage-grouse breeding, nesting, and wintering habitats.

- Reduce the availability of predator “subsidies” such as human-made den sites (nonfunctioning culverts, old foundations, wood piles) and supplemental food sources (garbage dumps, spilled grains, etc.) that contribute to increased predator numbers.
- Placement of power poles should follow prescription detailed in the discussion of transmission lines.
- Placement of fences should follow prescriptions detailed in the discussion of grazing management, and
- Treatment of conifer encroachment should be implemented in ways to minimize loss of sagebrush habitats.

BLM would utilize Oil and Gas BMPs for Wildlife to reduce impacts to wildlife. These BMPs address: In 2012, BLM developed BMPs for wildlife protection. Best practices established in the policy focus on the following five industry situations:

1. Open pits and tanks containing freestanding liquid;
2. Chemical tank secondary containment;
3. Pit, tank, and trench entrapment hazards;
4. Open exhaust stacks; and
5. Wire enclosure fencing.

These BMPs are summarized in Appendix B and can also be found at

[http://www.blm.gov/wo/st/en/info/regulations/Instruction\\_Memos\\_and\\_Bulletins/national\\_instruction/2013/IM\\_2013-033.html](http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2013/IM_2013-033.html).

## General Habitat

Within general habitat mitigation measures and conservation actions will mirror management actions in the selected alternative. Mitigation measures would be applied during activity level planning if an evaluation of the project area indicates the presence of important wildlife species, seasonal wildlife habitat, or other resource concern. Exceptions may be granted by the authorized officer if an environmental review demonstrates that effects could be mitigated to an acceptable level, habitat for the species is not present, or portions of the area can be occupied without affecting a particular species. Exceptions may also be granted where the short-term effects are mitigated by the long-term benefits (e.g., prescribed fire or forest health treatments).

In addition to actions below and in Chapter 2, best management practices for all resources may be found in Appendix C, and will help form the COAs applied to specific projects. These practices would be implemented at the discretion of the appropriate Field Office on a project-specific basis in general habitat, depending on the specific characteristics of the project area and the types of disturbance being proposed. They may not be appropriate to implement in all cases and in many cases may mirror those for priority habitat. Mitigation of surface-disturbing or disruptive activities would be applied where needed to minimize impacts and could be applied consistent with the oil and gas stipulations outlined in the Fluid Minerals section of Chapter 2. The mitigation would be requirements, procedures, management practices or design features that the BLM, through issuance of the Record of Decision, would adopt as operational requirements. The BLM may add additional site-specific restrictions as deemed necessary by further environmental analysis and as developed through consultation with other federal, state, and local regulatory and resource agencies.

## Greater Sage-Grouse Leks

Surface-disturbing and disruptive activities would be avoided if possible within 1 mile of sage-grouse leks.

## Greater Sage-Grouse Nesting Habitat

Surface-disturbing or disruptive activities may be restricted or prohibited.

Prioritize activities based on suitability of habitat; construct projects that are in less suitable habitat (i.e., along existing roadways or within degraded habitats) during the breeding season, and construct projects located in more suitable habitat prior to or after the critical breeding season.

Avoid sagebrush, but if disturbance is necessary, interim reclamation should include sage plantings/seedings and/or the use of minimum disturbance practices to protect sage on well pads, pipelines, and other disturbances.

Manage produced water to reduce the spread of West Nile virus within greater sage-grouse habitat areas.

### Roads

- Design roads to an appropriate standard no higher than necessary to accommodate their intended purpose.
- Do not issue ROWs to counties on energy development roads, unless for a temporary use consistent with all other terms and conditions included in this document.
- Establish speed limits to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.
- Coordinate road construction and use among ROW holders.
- Construct stream crossings of roads at right angles to ephemeral drainages and streams.
- Use dust abatement practices on roads and pads.
- Close and reclaim duplicate roads, by restoring original landform and establishing desired vegetation.

### Operations

- Cluster disturbances, operations (fracture stimulation, liquids gathering, etc.), and facilities.
- Use directional and horizontal drilling to reduce surface disturbance.
- Clean up refuse.
- Restrict the construction of tall facilities and fences to the minimum number and amount needed.
- Cover (e.g., fine mesh netting or use other effective techniques) all drilling and production pits and tanks regardless of size to reduce greater sage-grouse mortality.
- Equip tanks and other above-ground facilities with structures or devices that discourage nesting of raptors and corvids.
- Use remote monitoring techniques for production facilities and develop a plan to reduce the frequency of vehicle use.
- Control the spread and effects from non-native plant species. (e.g., by washing vehicles and equipment.)
- Mitigate pit and impoundment construction to reduce or eliminate augmenting threats from West Nile virus.

Include restoration objectives to meet greater sage-grouse habitat needs in reclamation practices/sites. Address post-reclamation management in reclamation plans such that goals and objectives are to enhance or restore sage-grouse habitat.

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